down.

2. A method of claim 1, wherein in the step of further pressing the foundry sand a compressive force which is greater than that in the first pressing step is applied thereto.

3. A method of claim 1 or 2, wherein the compressive force is applied through a compressive member or a flexible film-like member that is movable down.

4. An apparatus for molding a mold, comprising

a pattern plate fixedly and horizontally disposed,

subsidiary flasks disposed around said pattern plate so as to be moved up and down,

lift means for moving said subsidiary flask up and down,

a flask member disposed above said subsidiary flask so as to be moved up and down, and

compressing means disposed above said flask members, wherein the ends of the compressing members can reach at least a point within said flask member.

5. An apparatus of claim 5, further comprising a subsidiary flask disposed above said flask members, wherein the end of said subsidiary flask can reach at least a point within said flask member.

6. A molding machine that consists of a molding base, flask-setting cylinders disposed on both sides of the base, a frame disposed to bridge and support the up-and-down movements of the flask-setting cylinders, and a hopper which is supported by the frame for pressing foundry sand through segmented squeeze feet, the molding machine comprising

a device for transporting and replacing a carrier on which the pattern plate is to be mounted, and

a subsidiary flask that has ventholes surrounding said segmented squeeze feet, and that is connected to flask-setting cylinders so as to be movable up and down.

7. A molding machine of claim 6, wherein said segmented-squeeze-feet hopper is equipped with air-jetting chambers for aeration and nozzles disposed around said segmented squeeze feet for filling the hopper with sand.

8. A molding machine of claim 6, wherein said pattern plate carrier has a frame for removing a finished mold, and wherein the frame is disposed around the periphery of said pattern plate so as to be moved up and down.

9. A pattern carrier comprising

a mount on which the pattern plate is mounted and

a flask-shaped frame disposed movably up and down around said pattern plate for removing a finished mold.

10. A pattern carrier of claim 9, wherein said flask-shaped frame that is disposed movably up and down is slid up and down by actuators built in said pattern carrier or by a device for replacing the pattern plate.

11. A pattern carrier consisting of a mount on which a pattern plate is mounted, a flask-shaped frame disposed movably up and down around said pattern plate for removing a finished mold, a plurality of guide pins for moving said flask-shaped frame up in a parallel manner, and a plurality of actuators mounted on a molding base, the pattern carrier being characterized in that

said actuators pass through a space in said pattern carrier so as to have said plurality of guide pins move up and down, and so as to have their ends not touch the lower surface of the pattern carrier at their most contracted states.

12. A pattern carrier of claim 10 or 11, wherein said actuators are cylinders operated by an operating fluid.

13. A pattern carrier of claim 10 or 11, wherein said actuators are electric cylinders.

14. A pattern plate carrier for carrying a pattern plate, wherein the pattern

plate carrier has an auxiliary flask on which a pattern plate is mounted movably up and down, comprising

a plurality of upward movable cylinders mounted on said pattern plate carrier to move said auxiliary flask,

at least two special oil cylinders mounted on said pattern plate carrier for supplying a fluid with the upward cylinders by being alternately contracted, and

at least two cylinders disposed separately outside said pattern plate carrier, and constituted such that the mutual expansion of said at least two cylinders causes said respective special oil cylinders to alternately contract.

15. A molding machine of claim 6, wherein said pattern plate carrier comprises

a plurality of upward movable cylinders mounted on said pattern plate carrier to move said auxiliáry flask,

at least two special oil cylinders mounted on said pattern plate carrier for supplying a fluid with the upward cylinders by being alternately contracted, and

at least two cylinders disposed separately outside said pattern plate carrier, and constituted such that the mutual expansion of said at least two cylinders causes said special oil cylinders to alternately contract.

Abstract:

In the molding machine of this invention, foundry sand thrown into a molding space defined by a pattern plate and flask members is compressed in two steps. Namely, in the first step a lower subsidiary flask is stationary while in the second step the flask is movable. The pattern carrier molding machine of this invention comprises a molding base, flask-setting cylinders, a lift-support frame, and a segment-squeeze sand hopper. The auxiliary flask 62 of the compact pattern-plate carrier with an auxiliary flask of this invention is installed movably up and down through a plurality of upward oil cylinders 63,63 that are expanded/contracted via special oil cylinders 64,65 operated by outside cylinders 68,69.